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FINAL REPORT

EVALUATION OF HERBS & SPICES

D-90-CS-0742

AGRICULTURE DEVELOPMENT FUND PROJECT

FINAL REPORT

Project No. D-90-CS-0742

Title: **Evaluation of Herbs & Spices**

Date: November 20, 1990

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Saskatchewan Rural Development

Co-operator: Mrs. Loretta Hughes

ABSTRACT

Thirty-four varieties of herbs and spices along with two exotic cereals and one oilseed were grown under irrigation to evaluate their adaptability to local growing conditions. Twenty-one varieties of herbs and spices grew well. Both cereals and the oilseed grew very well.

Several of the herbs and spices failed to germinate bringing into question the viability of the seed received and the germination methods employed. A few of these varieties require special conditions for germination to occur.

There appears to be potential, at least from a productivity standpoint, for production of some of these crops to supply local markets. However, production of these crops was very labour intensive discouraging the co-operator from pursuing herb and spice production as a commercial venture.

OBJECTIVE

To identify those varieties of herbs and spices that are adapted to irrigated production under local growing conditions.

PROCEDURE

Thirty-four varieties of herbs and spices, two varieties of cereals and one oilseed were sown on 18 raised soil beds (Figure 1). Seeding took place on May 17 and 18. The raised beds measured 4 feet by 12 feet and were approximately 8 inches above grade.

Each bed was divided to accommodate two varieties with the exception of one bed which was divided to accommodate three varieties.

Three packets of seed for each variety were broadcast on the designated plot and lightly raked and packed to incorporate. Watering commenced immediately following seeding and the soil kept moist until most varieties had germinated. Watering continued on a regular schedule until August 1. All plots were hand weeded regularly.

On August 30 a subjective performance evaluation was carried out on all varieties. Germination and growth of each variety were evaluated using a 0 - 10 scale. Germination was evaluated by counting the number of individual plants growing on each plot. Growth was evaluated by estimating the proportion of the plot covered by each variety.

On September 10th a few plants from 21 varieties were harvested. The plants were cut with scissors and laid out on newspaper in a greenhouse to dry. After 10 days of drying the seed or vegetation was separated from the unwanted portion of the plant, packaged and labelled. The co-operator estimated the time required to carry out the harvest and variation in ease of harvest between varieties.

RESULTS (Table 1)

Of the thirty-four varieties of herbs and spices seeded, twenty-one appeared well adapted to the local growing conditions in 1990. Both exotic cereals and the oilseed included in the trial grew very well.

In evaluating the performance of each variety both the germination rate and growthiness were rated on a scale: o = no germination, no growth; 10 = excellent germination, excellent growth. Some varieties rated poorly for germination but excellent for growth. Several varieties did not germinate at all. These results may indicate that special conditions of temperature, humidity and light are required to achieve germination. Perhaps once germinated all of these varieties would grow well in our climate.

A few plants from each of twenty-one varieties were harvested for seed or vegetation to get an idea of the process and labour required. Some varieties that were rated low on August 30 had significant growth prior to harvest and were therefore harvested. Some varieties were easier to harvest than others. This was mostly a factor of the amount of seed or vegetation per plant. Plants that produced a large amount of seed or vegetation, as did summer savory were easier to harvest. Plants that had sparse

seed or vegetation production such as chinese parsley and anise required more time to harvest a given amount. All varieties harvested were rated for ease of harvesting. Market prices would have to reflect these differences.

CONCLUSION

Spring weather was very cool and wet for three weeks after seeding. This may have been the cause of poor gemination in some varieties. The co-operator indicated that on at least two plots that rated poor for germination, she may have damaged the seedlings while weeding the plots. Seed viability may have also been a factor with the varieties that did not germinate. Germination is typically very low in many of these varieties.

Perhaps with careful weeding and possibly starting some varieties under controlled conditions a larger number could be successfully grown.

This evaluation identified those varieties that appear to be easy to grow and those that may need some special care if they are going to be successful. Using this information the grower can decide if he/she is willing to deal with the more difficult to grow herbs and spices or stick to the easy to grow varieties. It must be remembered that these results are based on one year only. If we were to repeat the evaluation under different growing conditions the results could vary. Possibly under warmer spring conditions more than 21 varieties would have performed well. Several years of evaluation would be required to obtain conclusive information on the adaptability of each variety.

ECONOMIC EVALUATION

Labour requirement for weeding and harvesting were very high. Forty-five hours or better were spent weeding. Approximately 25 hours were spent harvesting a small sample from 21 varieties.

The co-operator felt that for her scale of operation and the amount of labour required, the price she would have to charge for the produce to make the venture worthwhile would not be acceptable to the local consumer.

IMPACTS

The findings of this project can be used by those considering growing herbs and spices for personal or commercial purposes. Those varieties that are most likely to be successfully grown

with no special management under our conditions have been identified. As well, varieties that may require intensive management have also been identified. Prospective growers can use this information in deciding which herbs and spices might fit into their operation.

An ADF tour was conducted to the site of this project. The co-operator has had several inquiries regarding project results. A local newspaper article is planned in which results will be discussed.

FINANCIAL REPORT

	Budgeted	Spent	Payment Outstanding
Labour:			
(a) Seeding & soil preparation	$ 40.00	40.00	No
(b) Hand weeding	450.00	450.00	No
(c) Hand harvesting	250.00	250.00	Yes
Materials and supplies:			
(a) Seed	216.00	109.09	No
(b) Sign post and hardware	20.00	20.00	No
(c) Seed packets	5.00	5.00	Yes

PROJECT APPLICANT: DISTRICT #4 ADD BOARD

CO-OPERATOR: Mrs. Loretta Hughes, Shaunavon

PROJECT LEADER: Bob Springer, Extension Agrologist
Saskatchewan Rural Development, Shaunavon

FIGURE 1.

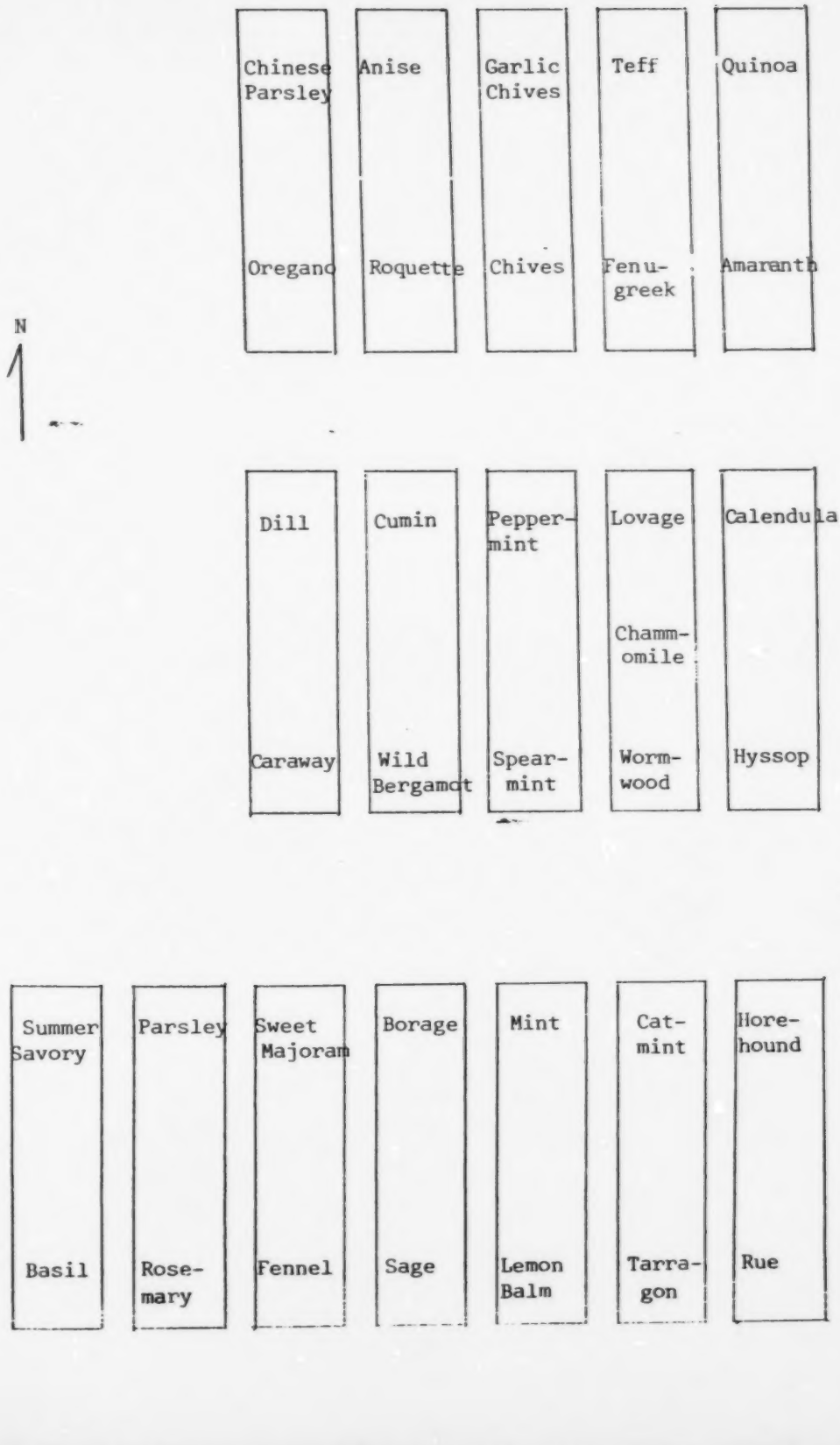
Chinese Parsley
Anise
Garlic Chives
Teff
Quinoa
Oregano
Roquette
Chives
Fenu-greek
Amaranth
N
Dill
Cumin
Pepper-mint
Lovage
Calendula
Chamm-omile
Caraway
Wild Bergamot
Spear-mint
Worm-wood
Hyssop
Thyme
Summer Savory
Parsley
Sweet Majoram
Borage
Mint
Cat-mint
Hore-hound
Lavender
Basil
Rose-mary
Fennel
Sage
Lemon Balm
Tarra-gon
Rue

TABLE 1

PERFORMANCE RATING

Scale 0 - 10 0 = very poor
10 = excellent

Variety	Germination	Growth	Part Harvested	Ease of Harvest	Comments
Thyme	3	4	vegetation	Easy	- late growth
Lavender	0	0			- start indoors takes 21 days to germinate
Basil	6	8	vegetation	easy	
Summer Savory	10	10	vegetation	easy	
Parsley	6	10	vegetation	easy	
Rosemary	0	0			- requires light to germinate - takes 21 days
Fennel	4	10	vegetation	moderate	- small amount of vegetation per plant
Sweet Marjoram	3	8	vegetation	easy	
Sage	3	10	vegetation	easy	
Lemon Balm	0	0			- requires light to germinate grow from cuttings
Mint	0	0			- requires light to germinate
Cat Mint	9	10	vegetation	easy	
Tarragon	4	10	vegetation	easy	
Rue	2	5	vegetation	easy	- late growth
Hyssop	10	10	vegetation	moderate	
Horehound	6	5	vegetation	moderate	- late growth
Calendula	10	10	seed	moderate	
Ornamental Amaranth	10	10	seed	easy	
Fenugreek	10	10			
Chives	6	6			
Garlic Chives	6	6			
Lovage	3	8			
Wormwood	2	7			) may have
Chammomile	1	2	flower & vegetation	moderate	)- disturbed) seedlings when) when weeding
Caraway	2	4			
Dill	10	10	seed & vegetation	easy	
Roquette	10	10			
Oregano	6	6	vegetation	difficult	- small plants

Table 1 - continued

Variety	Germination	Growth	Part Harvested	Ease of Harvest	Comments
Chinese parsley	10	10	seed	difficult	
Anise	8	10	seed	difficult	
Cumin	2	4			
Wild Bergamot (mint)	0	0			) propagate
Peppermint	0	0			)- by root
Spearmint	0	0			) cuttings
Exotic Cereals					
Quinoa	10	10	seed	easy	
Teff	10	10			- very small seed
Oilseed					
Borage	10	10	seed	difficult	- seed shattering